Putting the Power of GEOINT in Your Hands
GEOINT Symposium
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(As Delivered)

Good Morning to everyone! It's a pleasure to be with you here today.

Like Caryn Wagner, this is my first GEOINT. Hard to believe. Hopefully, I will be invited back. I want to thank **Stu Shea**, CEO and Chairman of USGIF, and **Keith Masback**, President, for sponsoring this annual event. I would also like to extend a special thanks to the USGIF founding members – Stu named several of them this morning – for their foresight, dedication, and relentless focus on growing and maturing the integration of GEOINT in our daily lives and in the world of national security. From the sidelines, I have seen this forum grow (and there are a lot of people in this audience) and expand into one of the most exciting events in the Community and I am very honored to be a part of it.

I was appointed Director of the National Geospatial-Intelligence Agency almost three months ago, and I can give you my bottom line now: *This is a great Agency with a tremendous mission*. There is a breadth and depth here that I appreciate more every day, and I think, there is significant, unrealized potential.

I am extremely fortunate to have assumed leadership of NGA at this ideal time.

NGA has earned its place at the table. We <u>have</u> arrived.

Why do I say this?

- Because, no one will go to war without us.
- No one will manage a humanitarian crisis without us.
- And no one will respond to a natural disaster without us.

NGA is *always* ready to support our customers. Our workforce is highly educated, motivated, and ready for what's next. I see that *every* day, and it is one of the most rewarding aspects of my job.

NGA has delivered on the former Director of NGA and Director of National Intelligence, **Jim Clapper's**, promise of providing "Situational Awareness." We provide that "common operating picture" and as he said earlier this morning, it is the solid foundation upon which all intelligence is built. We owe a debt of gratitude to him. Thanks to Admiral **Bob Murrett**, in the last few years, NGA has stepped up its support

to military operations, discovering and applying innovative ways to support the warfighters as an integral part of *their* decision cycle.

We did not and could not have done this alone. *You*, our industry partners, are also an integral part of why NGA, the National System for Geospatial Intelligence, or NSG, and the global GEOINT Community have achieved the successes we have, and you are a critical part of our future. And I *Thank You, right now*.

As we look to our 15th anniversary *next* October, NGA is ready to take GEOINT to the next level and *Put the Power of GEOINT in Your Hands*. I'd say this is our version of GEOINT 3.0.

I see two principal near-term goals in order to do this.

> **First**: **Provide On-Line, On-Demand Access to our GEOINT Knowledge.** *Give our customers – from novice to expert – access to our content, our services, our expertise and to our support – and to tools that allow them to serve themselves.*
>
> **Second**: **Create new value by broadening and deepening our analytic expertise.** By *providing deeper, contextual analysis of places informed not only by the earth's physical features and imagery intelligence, but also by "human geography."*

Let me take a moment and show you what I mean.

We first have to put the power of GEOINT directly in the hands of our users through online, on-demand access to NGA's knowledge.

I want to ***fundamentally*** *change* the user's experience.

Here's where we are today. At any given time, we typically know where all of the "hot spots" are around the world. We know what is happening. We know what geospatial intelligence support is needed. And we know what support we are providing. We are filling gaps in collection by directing a wide range of assets. We are producing tailored products, often by NGA employees forward deployed with the customer.

In Haiti, for example, NGA produced products that showed the locations of airfields as a function of distance from the earthquake's epicenter so aid could be delivered.

We produced products using LIDAR to create an initial damage assessment.

And we produced detailed graphics that highlighted the level of damage, and the locations of:

- Functioning hospitals,
- Internally Displaced Persons camps,
- And the viability of the transportation network between them.

These products were readily available on the Worldwide Web as well as through our own *GEOINT Online* site—to increase the information sharing potential for an expanding user base.

And while this support was superb, I will tell you that it was labor-intensive, and that making and sharing some of these discrete products online was done through "brute force." Once produced, the products themselves were static and updating them was more of a manual—than an automatic—process. Users had to rely upon NGA to do the work.

What do I see next? I want to take what NGA has done for the user and put that power directly in *their* hands – on a mobile device or the means of their choosing. And I want to fundamentally change their online experience to one where they can *interact* with dynamic content & services themselves – if and when they want – through online, on-demand access to global seamless foundation, imagery, product, and activity layers.

I think you all know what I'm talking about: In 1994, Amazon.com changed the way we find and buy books. Commercial companies have changed the way we interact with each other online and with mobile devices, tablets, and a plethora of "apps"—many with location-based services. NGA has *not* taken full advantage of these technologies and trends and incorporated both what's possible and increasingly commonplace today in how we deliver what we *have* and what we *know*.

We have to take the complex geo-processing capabilities of a GIS and deliver to the user intuitive—but powerful—apps that perform the tasks that are needed.

Would you like to determine the potential Helicopter Landing Zones? We'll build you an app for that. Do you want to determine Distribution Routing? We'll build you an app for that also. Do you want to geo-tag photos? Well, let's create an app for that, too…and many more that allow you to access open source street maps, or apply crowd sourcing to solve a problem.

I'd like to see: *Transparent* access to as much raw data as possible, including open source data.

I'd like to see: A *proliferation* of "apps," developed by both providers and users, alike, that empower users to "do it themselves"—when and where they want.

I'd like to see: *Innovative* use of social networking behavior and technology to enhance and *easily share* what we know on a continual basis.

In other words, I'd like to see our users *empowered* and give them a much better experience as part of a suite of online services.

We can empower our users to "serve themselves" online like we all do in our private lives when we use e-commerce sites. We need to give them applications that will allow them to work with our data, our information, and our knowledge just like mobile phone users are empowered with their "apps" and online stores and marketplaces.

We need to provide the means to easily discover and retrieve our GEOINT products and services, to interact with our dynamic layered content, and to be able to obtain – or request – new products, new analysis, and new services, as well as to provide the means for users to contribute their work and analyses for everyones' benefit in the global GEOINT community.

Having a responsive online, self-serve capability—our *store front, if you will*—will allow us to focus our attention on two *other* ways of interacting with our users: *assisted service, and full service*. I think we can improve upon the support we now provide to our deployed warfighters in whatever environment they face. We need to provide our partners with capabilities to "Find-an-Expert" to answer their questions, collaborate on a product, or request more service.

Of course we will continue to deploy our people and embed them with our mission partners. Yet those forward deployed GEOINT experts will now have much better online access and tools so their value to the warfighter will be even greater. We need our analysts – wherever they are – to be doing *analysis—not* searching to find existing products!

There are many ways you can help us achieve this first goal of creating Online, On-Demand Access to GEOINT Knowledge.

For example, how do we:

- Improve the ability to discover our products;
- How do we empower developers to create apps that give the end-user the power that they need;
- How do we move toward a seamless coverage model and away from discrete products;
- And how do we make this content accessible globally.

If we are to operate as an online, on-demand GEOINT knowledge service, then we need to alter the way we think about our data, and about our analysis, and about how we deliver our knowledge so that it can be accessed in a timely, customized, and responsive manner.

Now, let's talk about the second goal; Creating new value by broadening and deepening our analytic expertise.

GEOINT is not only about describing Where? What? When? or How Many? Although we're very good at that!

It's also about possibilities, trends, and implications. It's about *context*. It's about *anticipating:* What could happen, Where it could happen, and Why it could happen.

By moving to more of an "*anticipatory*" posture, we can create new *value* for the policymakers, the warfighters, the Intelligence Community, and first responders. The potential value added is significant: if we can use our GEOINT expertise to focus the national security community on an issue *before* it becomes a crisis, we will have given everyone the opportunity to leverage their assets more effectively, and we will have given the policymaker valuable time to consider a broader range of policy options.

But, what does this *really* mean?

GEOINT by its very nature is synonymous with a deep contextual understanding of places…of *locations* on the Earth.

This understanding is informed by what we know about the Earth's physical features.

It is informed by what structures people build.

It is informed by how people use those structures—their activities, if you will.

And it is informed by "human geography." It is data and information that can be understood spatially and depicted visually that further deepens and enriches our understanding of a "place."

Human geography includes things like:

- tribal boundaries,
- political ideology,
- birth and death rates,
- populous places,
- proximity to health facilities,
- principal market commodities,
- ethnicity,
- languages,
- education,
- access to media, and
- other cultural features.

Unlike terrain or man-made features this data set can and does change rapidly and dramatically based on the problem. *"GEOINT" is the examination of <u>all</u> of this data viewed through a spatial and temporal lens*. This is what makes it "GEOINT" and this is what makes NGA—and the kind of people we employ—uniquely postured to analyze this data and convert it to information and knowledge.

What we need to do is exploit the spatial and temporal properties of this data; to discover patterns, trends, signatures and correlations in that data; and to communicate this GEOINT analysis visually. Often, the human mind cannot absorb vast amounts of data through the written word alone.

NGA "thinks spatially" and can depict that visually. This is a unique, core competency that we bring to the national security mission.
The integration and analysis of *ALL* of the data that we can obtain about a place can yield new insight into age-old questions.

- *Where* are the conditions right for WMD proliferation?
- *Where* will the next pandemic outbreak occur?
- *Where* will transnational criminal activity spread?
- *Where* will the next mass migration event occur?
- *Where* are the populations most susceptible to extremist ideology?

If we were to look at one of these questions from the perspective of GEOINT, here's what we might examine:

- We would look at a broad range of *geospatial information*—the type of terrain, elevation, and feature data like roads, buildings, hilltops and rivers. And we would ask:
    - How do people move from one place to the next?
    - How does **this** manifest spatially and over time?

- We would look at *populations*: language, ethnicity, education, demographics.
    - Do certain populations commonly or readily form alliances?
    - How does **this** manifest spatially and over time?

- We would look at *history*:
    - Is there a history of religious conflict in a region?
    - How does **this** manifest spatially and over time?

- We would also look at:
    - The *economy,*
    - *Access to technology,*
    - And *climate*:
        - And how do **these** manifest spatially and over time?

My purpose today is not to answer these enduring national security questions.

My purpose is to suggest that our analysis will be greatly enriched by the understanding the interrelationship of <u>all</u> GEOINT factors—the Earth's physical features, imagery intelligence, <u>and</u> human geography.

The unique value that NGA brings is our ability to look at a huge amount of information *through a spatial and temporal lens, in an interrelated way*. The resulting analysis will yield new analytic insights and give the national security community a deeper *context* to grapple with these difficult questions.

For example:

- Spatial data analysis techniques can create signatures for activity and phenomena that help us locate places with similar characteristics that relate to the hard problems we face. In other words, we can "narrow our search space" and provide

the basis for our customers to use their resources more efficiently and more effectively.

- Such anticipatory analysis can also help us understand the context for interpreting activities—*What's normal? What's not normal?*

- Spatial representations of a variety of data help *reveal patterns* not evident in textual data.

As long as we have the courage to "let the data surprise us," I am convinced our analysts will lead to new discoveries—and not only by NGA. We will enrich the analysis of *others*, especially the analysis performed by the all source analyst.

And that's the power of GEOINT.

And there are many ways you can help us. How do we deal with:

- Vast amounts of unstructured data?
- How do we deal with untagged data?
- Pattern recognition in large data sets?
- Visual analytics, including four-dimensional visualization capabilities?
- Behavioral modeling?

I could go on, as I know you all could, too.

But let me leave you where I began: I want to Put the Power of GEOINT in Your Hands.

- First, through the creation of Online, On-Demand Access to our Knowledge; and

- Second, by providing deeper, contextual analysis of places informed not only by the Earth's physical features and imagery intelligence, but also by "human geography" so we can better *anticipate* when something may happen and <u>why</u>.

We cannot do this without you, our industry partners; we cannot do this without you, our government partners; we cannot do this without you, our international and academic partners; and we cannot do this without a deep and continuous interaction with our users—those policymakers, warfighters, first-line responders and relief organizations, for they are our motivation to excel.

Thanks so much for your warm welcome. I look forward to new and improved relationships with you to ensure the realization of this vision for NGA, the NSG, and the global GEOINT Community.

Thank you.

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